

Lifelong Education in Southeast Asian Countries



**A Retrospect and Prospect for Gaining
and Enhancing Prosperity, Progress
and Democracy**

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Activity-Based Learning Approach to Increase the Capability of Understanding Concepts and Analyzing Problems in Sports Nutrition for Student of Faculty of Physical and Health Education

Introduction

Sport Nutrition Science is an important applied science needed to the students of the Faculty of Physical and Health Education. This subject is given to the students of the third semester. The subject contains the knowledge on concepts and terms of sport nutrition science, nutrition needed by the human body, food and the content of nutrition, nutrition functions for the body, digestion process and nutrition metabolism, excretion of waste matters from the body, necessary nutrient for an athlete, obesity, nutrition for diabetes mellitus and nutrition for osteoporosis.

Although this subject is important for the students of this faculty, according to the examination results, it's showed that they did not achieve the understanding level that had been required based on the curriculum. The two years observation showed that more than 60% of the examination results are around at the grade of C. This fact is quite poor for the quality for graduation and for their work professionalism in the future.

Based on the questionnaire given to the students, the low result of study was caused by several factors. One of the reason was this subject was hardly understood because it involved some previous subjects such as Physiology and Anatomy. Furthermore, they felt difficult to analyze problems that leading them to be bored. Learning the subject was felt to be a burden instead of getting advantage knowledge. They didn't find any awareness to study or to do the tasks given. This condition was worsen by the tiredness felt by students to study in the class after some serial physical activities that should be taken before they entered the class.

Based on the problems mentioned above, I realized that lecturers needed to give a positive response factually and objectively as a trial to awake their motivation and participation to learn Sport Nutrition. The

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The implementation of the learning process consisted of introduction, core activities and evaluation. Analyzing pre-test and post-test acted as evaluation of the cycle. Succeed parameter of this cycle was to achieve 65% of understanding. The researchers together with action implementation implemented the observation. Reflection was done immediately after implementation and served as correction for the second cycle.

Similar to the first cycle, the implementation of the learning process consisted of introduction, core activities and evaluation. The success of this activity-base learning approach was evaluated based on several indicators as follows: (1) Lecturers had been able to implement the learning approach dealing with the steps planned; (2) There was an active participation of the students during the learning process; (3) The achievement of minimal 65% of understanding; and (4) There were good responses in the written questionnaire of the students regarding the method applied.

It applied the statistical method of two average different tests to find significant difference on scoring of pre-test and post-test averages. Questionnaire data were analyzed by describing those data.

Research Result and Discussion

1. Profile of the Students

Through a number of questions given to the students in the beginning of the lecture, it was obtained the profile of their pre-capabilities. In the first cycle test, the pre-test average score was 3.76 (± 2.10) for the treatment group and 4.40 (± 2.33) for the control group. In this topic, the type of question was designed to know the students capabilities to understand the concepts and terms in Sport Nutrition. Although basic of this topic had been given in their senior high schools, the students forgot the topics that had been taught. Their habit to memorize terms without understanding, leading them became easy to forget the topic that had been taught. The method applied by their teachers in high school was speech-learning method using a blackboard.

Pre-test result of the second cycle with the topic "Digestion Process" showed the average score of 4.90 (± 2.00) for the treatment group, while 3.53 (± 1.58) for the control group. The questions of this topic were given by case-analyzing types to know the students' analyze capabilities to solve the problems. It was meant to stimulate their reasoning power so that they did not rely on the learning only but moreover they had to improve their critical way of thinking. Bases of this topic had been discussed in the pre conditional lecture that was physiology and anatomy with the speech learning approach.

learning approach should be modified into a more innovative one, supported by available facilities. The approach chosen in this study is the activity-based learning approach. There were some activities to be implemented into this approach, which were visual activities, listening activities, writing, metric, mental activities and emotional activities (Dierich, 1999).

According to the background of the problems above, these research problems were formulated as follows: (1) Can the activity-based learning approach improve the students' capability in understanding the concepts of Sports Nutrition?; (2) Can this approach improve the students' capabilities to analyze problems in the subject given?; (3) How to apply the activities-based learning approach in order to improve the quality of learning for the students of Faculty of Physical and Health Education?; and (4) How are the students' responses toward the application of the approach in the subject?

The purpose of the research was to identify the impact of activities-based learning approach in improving capabilities to understand Sport Nutrition concepts and problem analyses as well as to know their responses toward the approach of the subject that were given.

Research Method, Preparation, Implementation and Data Analyses

Students acting as objects of this research were 46 students of the third semester. They were divided into two groups, which were 21 students of the treatment group; and 25 students of the control group. The treatment group was applied into the activity-based learning approach, while the control group into the speech learning approach.

There were two factors to be investigated in this study, which were students' variable and lecturer's variable. Students' variables consisted of their understanding of the concepts, their capability to analyze of the subject problems, and their motivation to study this lecture. Lecturer's variable to be observed was the most suitable learning strategy adjusted with practicing activity-based learning approach.

The actions implemented in this research consisted of some steps, which were preparation, implementation, observation, reflection and analyses steps. In the preparation or diagnostic step, it consisted of: (1) Established the number of cycles. In this case this research consisted of two cycles. Every cycle had one topic that takes 2-3 sessions. Topic to be presented in the first cycle was "Concepts and Terns on Sport Nutrition"; (2) Prepared equipment needed in activity-based learning approach; (3) Established observational criteria and its implementation; (4) Established the type of data and its collecting method. Qualitative data was collected through observation. Quantitative data was collected through repeated evaluations; and (5) Reflection was conducted in the end of every cycle.

2. Action's Result and Process, Observation of Lecturer's Action and Reflection Analyses

Before implementing the activity-based learning approach, I introduced an ice-breaking method to make both sides familiar, to attract the attention and their interest, and to invite their participation. A conversation with atmosphere of relaxation related with the subject that was discussed attracted their attention. Then, a number of questions were given to know the students basic mastery on the concepts. Next step was entering the core of the teaching process of the activity-based learning approach. The mean scores of the post and pre-tests between both groups of the cycle 1 were shown in the table 2.1:

Table 2.1.
Mean Score of Cycle 1

GROUP	N	Cycle 1								
		Pre-Test			Post-Test			Gain		
		Mean	SD	Var	Mean	SD	Var	Mean	SD	Var
Treatment	21	3.76	2.10	4.39	8.90	1.41	1.99	5.14	2.39	5.73
Control	25	4.40	2.33	5.42	6.92	1.85	3.41	2.52	1.96	3.84

The post-test result showed that the students' mean score of treatment group was 8.90 (± 21.41) and for the control group was 6.92 (± 21.58). Both understanding level achieved the target (65%). The normality test of each group showed an abnormal distribution data so that it continued with a non-parametric statistical approach. To see a significant increase on both sides, it was used another test, namely "Wilcoxon Signed Rank Test". Through this test, both activity-based learning approach and speech learning approach have significant results in increasing students' understanding of capability.

By the end of the learning process, a chance was given for the students to forward questions. During the session of discussion, there were 12 students (57%) involved actively both giving a question and responding his mate's question. It showed that the participation level of the students in the treatment group was higher than the control group (only 4.7%).

The lecturer's observation of the first cycle found some things should be improved. When the students of treatment group were divided into smaller groups, they sat into a round. Some of them sat opposite the lecture. This position made some students difficult to focus lecturer's explanation during discussion. This matter would be corrected in the cycle 2 by changing the position into a half circle so that none of them sat opposite

the lecturer. Beside that, there was delay of learning starting time because activity-base learning approach needed longer time of preparation for setting the tools. It would be anticipated in the cycle 2 by providing more time before this learning process.

In the cycle 2, the lecturer did some revision of actions reflected in the first cycle. Every action in this cycle 2 were implemented based on the program. The mean result of this pre and post-test was seen on the table 2.2.

Table 2.1.
Mean Score of Cycle 2

GROUP	N	CYCLE 2								
		Pre Test			Post Test			Gain		
		Mean	SD	Var	Mean	SD	Var	Mean	SD	Var
Treatment	21	4.90	2.00	3.99	9.33	0.86	0.73	4.43	2.04	4.16
Control	25	3.52	1.58	2.51	6.80	1.66	2.75	3.28	2.25	5.04

The post-test result of the second cycle showed that the students' mean score of treatment group was 9.33 (± 0.86) and for the control group was 6.80 (± 1.66). The students on both groups can achieve the target results (65%). Same as the cycle 1, the result of the cycle 2 showed an abnormal distribution of each group. That's why this research conducted a non-parametric approach. To measure the rise on both groups, Wilcoxon Signed Rank Test was used. This test showed a significant different between treatment group and control group in increasing the studying results.

In the cycle 2, there was an improvement of students' participation. The number of students of treatment group who asked questions in the discussion session (64%) was higher than the control group (4%). Likewise, reflections had been done based on the observation and evaluation on the cycle 1, brought a positive impact in the cycle 2.

3. Analyses of Impressions and Responses of the Students

Except the evaluation of post and pre test above, this research also distributed questionnaire to the students to find their impressions and responses. Analyses descriptive of the questionnaire in the treatment group showed that the applied of activity-based learning approach made the topic easier to be understood (100%), more interesting (100%), and more pleased so can motivate them to study (100%).

4. Analyses of Learning Comparison of Sport-Nutrition Science on Both Approaches

Based on the data mentioned, it was obtained the difference mean of post and pre tests in the Cycle 1 is 5.24 (± 2.39) for the treatment group and 2.52 (± 1.96) for the control group and in the Cycle 2 is 4.43 % (± 2.04) for the treatment group and 3.28 (± 2.25) the control group. After the data were analyzed, it was showed that there was a significant difference on both groups that the treatment group is significantly better than the control one (with the degree of convince 95 %).

Conclusion and Suggestion

Referring to the statistical survey and reflective-analytical results and various observations on the activity-based learning approach, there are some conclusions as follows: (1) The activity-based learning approach can improve capability of the Faculty of Sports and Health Education students in understanding the concepts of Sports Nutrition; (2) This type of approach can improve the students' capabilities in analyzing the problems of the subject; (3) The activities-based learning approach can be applied by modified sitting position to optimized learning achievement; and (4) The activities-based learning approach can increase their motivation to study this subject.

This research showed that the activity-based learning approach is better than the speech learning approach to increase the capabilities of Faculty of Sports and Health Education students to understand the concepts, to analyze the problems and to increase their motivation to study Sport Nutrition. It is suggested to use this approach in other sciences learned in the Faculty of Sports Education and Health Education.

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